



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/789,756 | 02/27/2004 | Reinhold Ludwig | 30210-102CIP | 1908 |

26486 7590 09/09/2005

PERKINS, SMITH & COHEN LLP
ONE BEACON STREET
30TH FLOOR
BOSTON, MA 02108

EXAMINER

FETZNER, TIFFANY A

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2859

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/789,756

Applicant(s)

LUDWIG ET AL.

Examiner

Tiffany A. Fetzner

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/27/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 02/27/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Drawings

2. The drawings are objected to because

A) Component points A, and B are not recited in the specification with respect to figure 3.

B) Components X, Y, and Z are not recited in the specification with respect to figure 4B.

C) Figure 3 does not show tuning capacitors **CM_A, L₁, L₂, L₃**, as taught in the specification in the description of figure 3.

D) Figure 6A shows components Ra Rb and Rc but applicant's specification on page 8 paragraph [0018] line 4 recites resistors R1-R3.

E) Component points RA, LA, CA, CB, LB, RB, CMA, CMB, CC, LC, and RC are not referred to in the description of **Figure 6A**.

F) None of the components of **Figure 6B** are referred to in the description of **Figure 6B**. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the

Art Unit: 2859

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: Not all the drawing components shown are referred to in the specification, or are identified incorrectly. [See the specific drawing objections above. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2859

7. **Claims 1-19** are rejected under **35 U.S.C. 103(a)** as being unpatentable over **Nabetani et al.**, US patent 6,348,794 B1 issued February 19th 2002, filed January 18th 2000.

8. With respect to **Claim 1**, **Nabetani et al.**, teaches and shows "A multi-modal RF coil capable of being used within an MRI system" [See abstract, figures 1, 2 and 5 in combination], "comprising: a segmented annular base ring conductor" (i.e. the horizontal rectangular ring-like structure defined by the parallel construction lines 10-13, with neutralizing capacitors 14 through 17, the three portions of the arcing loop pieces 1, 2, and 3 to which the ends of the parallel construction lines 10-13 connect, and the connecting capacitors 4/c1', and 6/c3' depending on which figure 1 or 2, is referenced.) "having a central axis;" [See figures 1 and 2 where horizontal and vertical axis and directly indicated in the figures by the structure of figures 1 and 2, as well as the flow of the current shown in figure 2.] **Nabetani et al.**, teaches and shows "a plurality of capacitive electrical connections" (i.e. neutralizing capacitors 14 through 17 of figures 1 and 2), "disposed between segments" (i.e. each of the parallel construction lines 10-13 is a segment) "of the segmented annular base ring conductor" [See the above listed components, which define this feature] **Nabetani et al.**, shows at least one arcuate conductor" (i.e. arcing loop pieces 1, 2, and 3 are shown as arcuate conductors in figure 1) which are "symmetrically disposed with respect to the central axis of the base ring conductor and" have "two ends, one end terminating in direct contact with the base ring conductor" [See the nodal points of figures 1 and 2 where the parallel construction lines 10-13, directly contact the arcing loop pieces 1, 2, and 3 of figures 1 and 2], "the other end electrically connected to the base ring conductor via at least two of the plurality of capacitive electrical connections at a spatially distinct position along the base ring conductor." [See figures 1 and 2 in combination, the abstract, and the teachings of col. 1 line 27 through col. 8 line 57 which explains all the connections, interconnections, and alternative connection formations in detail.]

9. The **Nabetani et al.**, reference lacks teaching the applicant's exact terminology of an annular base ring conductor, or that the coil pieces have a definitive "arcuate" shape, however It would have been obvious to one of ordinary skill in the art at the time

that the invention was made that that the structure which the examiner is interpreting as an annular base ring conductor, (i.e. the horizontal rectangular ring-like / annular structure defined by the combinations of the parallel construction lines 10-13, with neutralizing capacitors 14 through 17, the three portions of the arcing loop pieces 1, 2, and 3 to which the ends of the parallel construction lines 10-13 connect, and the connecting capacitors 4/c1', and 6/c3' depending on which figure 1 or 2, is referenced.) define a rectangular base in a ring/loop formations, which meets applicant's claimed terminology. Additionally, even though the term "arcuate" is lacked by the reference, this feature is clearly depicted in the figure 1.

10. With respect to **Claim 2, Nabetani et al.**, shows that in figure 3 in one alternative embodiment that "the at least one arcuate conductor comprises a single arcuate conductor";[See figure 3. Additionally because the arcing loop pieces 1, 2, and 3 are parallel, figures 1 and 2 also suggest this limitation] The limitation of "the RF coil being operable in two modes in phase quadrature to establish a rotating magnetic field phasor orthogonal to a temporally constant uniform magnetic field generated by the MRI system" is also shown from the directions of the current shown in figures 2 and three where the current in each of the arcing loop pieces 1, 2, and 3 is transverse to the current through the parallel construction lines 10-13 of figures 2 and 3. [See figures 1, 2, the abstract, and the teachings of col. 1 line 27 through col. 8 line 57 which explains all the connections, interconnections, and alternative connection formations with current flow in detail.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

11. With respect to **Claim 3, Nabetani et al.**, teaches and shows that "the base ring conductor is capable of establishing a first of the two modes as a result of current flowing circularly through the annular base ring conductor; and a second of the two modes is established by 90 degrees phase shifted current flowing through the arcuate conductor and split between two halves of the annular base ring conductor". [See figures 2 and 3 the abstract, and the teachings of col. 1 line 27 through col. 8 line 57 which explains all the connections, interconnections, and alternative connection

formations with current flow in detail.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 3** and need not be reiterated.

12. With respect to **Claim 4, Nabetani et al.**, shows from figures 1, 2 and 3 that "the at least one arcuate conductor comprises a plurality of arcuate conductors symmetrically disposed with respect to the central axis of the base ring conductor; and the RF coil is operable in a plurality of modes in phase quadrature to establish a rotating magnetic field phasor orthogonal to a temporally constant uniform magnetic field generated by the MRI system". [See figures 1, 2 and 3 the abstract, and in general the teachings of col. 1 line 27 through col. 8 line 57 which explains all the connections, interconnections, and alternative connection formations with current flow in detail.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 4** and need not be reiterated.

13. With respect to **Claim 5, Nabetani et al.**, shows and suggests from figures 1 and 5 "the at least one arcuate conductor defines a selected cut in an anatomical region to be imaged by the MRI system". [See figure 5] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 5** and need not be reiterated.

14. With respect to **Claim 6, Nabetani et al.**, teaches and suggests from the dimensions taught in col. 2 line 38 through col. 8 line 57 that "the base ring conductor is comprised of a plurality of micro strip line segments". [See col. 2 line 38 through col. 8 line 57, figures 1, 2, and 5] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 6** and need not be reiterated.

15. With respect to **Claim 7, Nabetani et al.**, shows and suggests from figures 1 and 2 in combination with the dimensions taught in col. 2 line 38 through col. 8 line 57 that "the at least one arcuate conductor is comprised of a plurality of micro strip line segments", because each or the arcing loop pieces 1, 2, and 3 is comprised of at least two strip-line portions, which join each other through capacitors 7,8,9 or c1, c2,c3 depending on whether figure 1 or figure 2 is referenced. [See figures 1, 2, 5; the abstract and the teachings and dimensions of the components in col. 1 line 27 through col. 8 line 57.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 7** and need not be reiterated.

16. With respect to **Claim 8, Nabetani et al.**, shows that "the at least one arcuate conductor further comprises conducting segments and at least one tunable capacitive electrical connection disposed in a gap between the conducting segments for establishing resonance with the inherent coil inductance at the target frequency". [See figures 1, 2, and 5 in combination. See also the abstract and the teachings of col. 1 line 27 through col. 8 line 57] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

17. With respect to **Claim 9, Nabetani et al.**, teaches and shows "one or more of the plurality of capacitive electrical connections operate so as to tune the RF coil [See figures 1, 2, and 5 in combination. See also the abstract and the teachings of col. 1 line 27 through col. 8 line 57] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 9** and need not be reiterated.

18. With respect to **Claim 10, Nabetani et al.**, teaches and shows that "at least one of the reactance's (i.e. I1, I2, I3, R1, R2, R3) associated with the plurality of capacitive electrical connections compensates some or all of the inherent coil inductive reactance at the resonant frequency". [See figures 1, 2, and 5 in combination. See also the abstract and the teachings of col. 1 line 27 through col. 8 line 57] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 10** and need not be reiterated.

19. With respect to **Claim 11, Nabetani et al.**, teaches and suggests from figures 1, 2, 4, and 5 which suggest equal dimensions for the arc-like components 1, 2, and 3; along with an illustrated equal but transverse current flow between the defined base components, and the components of arc-like components 1, 2, and 3, that "at least one of the plurality of capacitive electrical connections match the impedance of transmission lines for connecting the RF coil to receiving electronics". [See figures 1, 2, and 5 in combination. See also the abstract and the teachings of col. 1 line 27 through col. 8 line 57] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

20. With respect to **Claim 12, Nabetani et al.**, lacks teaching explicitly that "the RF coil is dimensioned so as to receive a human breast", because **Nabetani et al.**'s coil is

designed to image the torso of a patient, [See figure 5.] However, figure 5 as illustrated is also suggestive of a region (i.e. the region between components 2 and 3 of figure 1) that is capable of receiving the anatomical breasts, chest, and back of a patient within the region defined between components 2 and 3 of figure 1. [See figure 5, therefore **Nabetani et al.**, Figure is being broadly interpreted by the examiner as suggesting, or as being suggestive for, this limitation.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 12** and need not be reiterated.

21. With respect to **Claim 13**, **Nabetani et al.**, teaches and shows at least "two electrical ports" (i.e. baluns are a type of electrical port) "for accessing electrical signals" (i.e. components v1, v2, v3 of figure 2) "induced in the RF coil" (i.e. component 100); and means for modeling" (i.e. via parallel connection) "the accessed electrical signals to interface with a single or multi-channel receiver amplifier". [See the three electrical baluns 21, 22, and 23; figures 1 through 5 and the teachings of col. 1 line 1 through col. 8 line 57.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 13** and need not be reiterated.

22. With respect to **Claim 14**, **Nabetani et al.**, suggests and shows from figure 5 that "the pair of RF coils are disposed in a manner so as to enable imaging of two anatomical regions by the MRI system". [See figure 5 where each of the arcuate loops of components 1, 2, and 3 from figure 1 define an anatomical region imaged by the MRI system.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 14** and need not be reiterated.

23. With respect to **Claim 15**, **Nabetani et al.**, lacks teaching explicitly that "the two anatomical regions comprise a pair of human breasts". However, figure 5 as illustrated is suggestive of a region within the region defined between components 2 and 3 of figure 1. (i.e. the region between components 2 and 3 of figure 1) that is capable of receiving/imaging a region of a female human subject comprising the anatomical breasts, chest, and back of a female subject; along with a second region of the lower torso. Alternatively, since component 3 can also be broadly interpreted as being located across the breasts of a human female patient, the imaging region of component 3 is also an anatomical region comprising a pair of human breasts; another alternative is

Art Unit: 2859

interpreting components 2 and 3 to be located across the patient above and below a female patients breasts. Therefore figure 5 of **Nabetani et al.**, is suggestive of at least three different anatomical regions, which may comprise a pair of human breasts. [See figure 5, therefore **Nabetani et al.**, Figure is being broadly interpreted by the examiner as suggesting, or as being suggestive for, this limitation.] The same reasons for rejection, and obviousness, that apply to **claims 1, 14** also apply to **claim 15** and need not be reiterated.

24. With respect to **Claim 16, Nabetani et al.**, suggests from figures 1 and 2 in combination at least "two pairs of electrical ports", because both ends of resonance capacitors 7, 8, and 9 are respectively connected with coaxial cables 24, 25, and 26 via baluns 21, 22, 23. [See col. 2 lines 38-50] and the examiner considers each end of resonance capacitors 7, 8, and 9 to be a connection port. Therefore **Nabetani et al.**, suggests from figures 1 and 2 at least three pairs or (six electrical connection port; the examiner notes that the number becomes 9 ports when the vi, v2, and v3 EMF circuitry is also considered); and that "each pair of electrical ports capable of accessing electrical signals induced in one of the multi-modal RF coils". [See col. 2 line 8 through col. 8 line 57.] The same reasons for rejection, and obviousness that apply to **claims 1, 14** also apply to **claim 16** and need not be reiterated.

25. With respect to **Claim 17, Nabetani et al.**, suggests a "means for modeling the accessed electrical signals to interface with a single-channel receiver amplifier", because the signals in the allocated pieces of the coils 1, 2, and 3 are received and processed independently (i.e. in parallel) of one another. [See col. 1 lines 18-37; additionally see the teachings of col. 1 line 28 through col. 8 line 57 in general.] The same reasons for rejection, and obviousness, that apply to **claims 1, 14, 16** also apply to **claim 17** and need not be reiterated.

26. With respect to **Claim 18, Nabetani et al.**, teaches and shows that the coil arrangement provides intrinsic / implicit / automatic "shielding disposed between the pair of multi-modal RF coils". [See figures 1 through 5, the abstract, and the teachings of col. 1 line 1 through col. 8 line 57.] The same reasons for rejection, and obviousness,

Art Unit: 2859

and motivation to combine, that apply to **claims 1, 14** also apply to **claim 18** and need not be reiterated.

27. With respect to **Claim 19, Nabetani et al.**, shows "one or more PIN diodes arranged in shunt with the plurality of capacitive electrical connections, the diodes being switchable between high and low impedance states that are capable of operating at a resonant frequency so as to actively tune or de-tune the RF coil"; [See the diodes of components 31 and 31 of figure 4, the abstract, and the teachings of col. 1 line 1 through col. 8 line 57.] The same reasons for rejection, and obviousness, that apply to **claim 1** also apply to **claim 19** and need not be reiterated.

28. **Claim 20** is rejected under **35 U.S.C. 103(a)** as being unpatentable over **Nabetani et al.**, US patent 6,348,794 B1 issued February 19th 2002, filed January 18th 2000.

29. **Claim 20** is also rejected under **35 U.S.C. 103(a)** as being unpatentable over **Nabetani et al.**, US patent 6,348,794 B1 issued February 19th 2002, filed January 18th 2000; in further view of **Lian et al.**, US patent 5,804,969 issued September 8th 1998..

30. With respect to **Claim 20, Nabetani et al.**, teaches and shows "An MRI system", [See figure 5] "including: a main magnet component providing a temporally constant and uniform magnetic field;" [See col. 8 lines 25-57] with the components of: "at least one RF coil acting as a transmitter; at least one multi-modal RF coil comprising a segmented annular base ring conductor having a central axis, a plurality of capacitive electrical connections disposed between segments of the segmented annular base ring conductor, and at least one arcuate conductor symmetrically disposed with respect to the central axis of the base ring conductor and having two ends, one end terminating in direct contact with the base ring conductor, the other end electrically connected to the base ring conductor via at least two of the plurality of capacitive electrical connections at a spatially distinct position along the base ring conductor; and electronics for transmitting and receiving electrical signals from the at least one multi-modal RF coil", taught, suggested and shown for the same reasons already provided **in the rejection of claim 1** which need not be reiterated. [See also figures 1 through 5, the abstract and the teachings of col. 1 line 1 through col. 8 line 57.]

Art Unit: 2859

31. **Nabetani et al.**, lacks directly teaching that the MRI system also includes “at least one gradient coil producing a pulsed, linear field gradient” However the examiner notes that the presence of gradient coils is conventional in the art of MRI, and that traditionally a means for producing a pulsed linear field gradient which encodes the received RF signals, from the RF coil in at least a first direction, but usually in three Cartesian coordinate directions, is an intrinsic MRI system component. Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made that even though the presence of a gradient coil is not explicitly recited, that there must be at least one gradient present, because gradients are used to encode the signals from each RF coil, so that the signal is properly located, and with the three RF arcing components 1, 2, and 3 of figures 1 and 5, It would have been readily obvious to one of ordinary skill in the art at the time that the invention was made that the parallel acquired signals, would also be acquired with a readout gradient active, in order to properly encode the detected signal from the region of the patient’s anatomy from where the signal was obtained.

32. Alternatively, **Lian et al.**, specifically teaches an MRI RF coil arrangement with two a resonant circuitry base, which like **Nabetani et al.**, comprises: a segmented annular base ring conductor” [See the circuitry defined as component 14 which is a base for coil 12a and 12b] “having a central axis;” [See figure 1] **Lian et al.**, teaches and shows “a plurality of capacitive electrical connections” (i.e. c2a, c2b, c3a, c3b and c6 of figure 1) “disposed between segments of the segmented annular base ring conductor” [See figure 1] **Lian et al.**, shows at least one arcuate conductor” (i.e. arcing loop pieces 12a, 12b, 16a, 16b, are shown as arcuate conductors in figure 1) which are “symmetrically disposed with respect to the central axis of the base ring conductor and” have “two ends, one end terminating in direct contact with the base ring conductor, the other end electrically connected to the base ring conductor via at least two of the plurality of capacitive electrical connections at a spatially distinct position along the base ring conductor.” [See figure 1 the abstract, and the teachings of col. 1 line 7 through col. 6 line 51 which explains all the connections, interconnections, and alternative connection formations in detail.] Additionally, **Lian et al.**, teaches the presence of

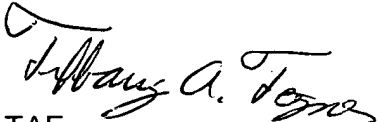
Art Unit: 2859

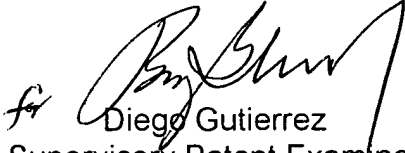
gradient coils. [See col. 1 line 10 through line 57]. Therefore, the **Lian et al.**, reference supports the examiner's position that gradient coils are conventional in an RF coil configuration, such as the configuration of **Nabetani et al.** The same reasons for rejection, obviousness, and motivation to combine, that apply to **claim 1** also apply to **claim 20** and need not be reiterated.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(703) 872-9306**.


TAF
September 6, 2005


for Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800